Environmental Assessment for the Construction of a Firebreak at the Piñon Canyon Maneuver Site

Section 1.0 Purpose of and Need for the Proposed Action

1.1 Introduction

Management of wildland fire has historically been accomplished at Fort Carson and the Piñon Canyon Maneuver Site (PCMS) to protect property, lives and sensitive natural and cultural resources (Fig. 1). Wildland fire is defined in the draft 2002 Department of Defense Wildland Fire Policy Memorandum as "an unplanned ignition of the native vegetation that requires fire suppression measures or other actions to avoid undesirable economic, cultural and/or natural resource impacts". The region is currently experiencing a drought and wildland fires have already cost millions of dollars to contain and control in Colorado. Hundreds of homes have been lost to wildland fire in Colorado thus far in 2002. Approximately 18,000 acres at PCMS and adjacent land burned as a result of a wildland fire in 1997. That fire began on U.S. Forest Service land adjacent to the PCMS and spread to the PCMS, ultimately burning approximately 6,000 acres of Army-controlled land. Although a firebreak alone would not stop a fire when the wind speeds are high, it is extremely useful to fire fighters as a part of the overall strategy when containing fires, and allows them increased access to the area for fire suppression activities.

1.2 Purpose and Need

The purpose of the proposed action is to provide enhanced protection of both the PCMS training resource base and private property adjacent to the PCMS from wildland fire. Conversely, Army-controlled property would be better protected from fires originating off the installation. A Federal Aviation Administration tower located in the area would also be afforded enhanced protection.

The proposed action is needed as an addition to the current wildland fire fighting management plan at the PCMS and would facilitate accomplishment of the PCMS Prescribed Burn Plan. This has become increasingly necessary, as drought and years of fire suppression have increased the fuel load and dryness of the timber and vegetation in the region. Military training in portions of this area further increases the risk of fire, and the direction of the spring and summer prevailing winds make this property at a higher risk. More homes have been built in the area north of the PCMS since the Army acquired the land for maneuver training in 1982.

Section 2.0 Description of the Proposed Action

Construction of the firebreak would occur within the area identified in Fig. 2. The proposed firebreak would not exceed a maximum width of 40 feet and 19 miles in length when completed. The following construction methods/fire suppression techniques would be utilized in different combinations within the designated area to comprise the firebreak:

- Prescribed burns
- Thinning and mulching trees
- Bladed areas
- Use of existing topographic/geologic features/roads
- Use of rock to build crossings where the firebreak would cross gullies
- Use of "green strip" vegetation resistant to burning

The firebreak would be constructed using two main methods: Prescribed burning and limited blading through some of the grassland areas (this includes using and improving existing roads/two tracks to be incorporated into the firebreak) and thinning and mulching trees in the pinon pine/juniper wooded areas. These strips of trees would be removed using a method of cutting and mulching. A piece of equipment known as a Hydro Ax would be used to accomplish this. The Hydro-Ax 721E is a multipurpose tractor with the attachment weighing approximately 30,850 lbs. The tractor is a John Deere 6076A diesel engine with 240 hp. The engine is equipped with a dry type duel-element air cleaner and muffler. The tractor and Hydro-Ax is 10 ft. 4 inches high, with a ground clearance of 21 inches. The wheelbase is 9 ft. 10 inches and the overall length is 28 ft., 1 inch. The Fecon attachment is hydraulically driven, and cuts and shreds brush, trees, and stumps down to ground level. It reduces the timber into small wood chips which can be left on the ground to decompose. The U.S. Forest Service has used the Hydro Ax in their fire-control strategies.

Most of the firebreak would be built in an area known as the "Soil Protection Area" at PCMS (Fig 3). In accordance with the 1980 Land Acquisition Environmental Impact Statement prepared when the Army acquired the PCMS, this area (approximately 20,700 acres) is off limits to mechanized training due to the fragile nature of the soils there, and the length of time that would be required to rehabilitate the area from maneuver damage.

Demonstration strips of burn resistant vegetation would be planted as test plots in selected areas of the firebreak for demonstration/observation to test their effectiveness for future plantings. No aggressive or non-native invasive species would be planted.

Three fire suppression pits would also be excavated as part of the project to provide water for helicopters' dip buckets (Fig. 2). These pits would be necessary because water cannot be legally obtained from the Purgatory River, and water is not always present in existing erosion control dams. The pits would be located near wells and previous excavations where water would be available, approximately 50 ft. x 50 ft. x 10 ft. deep at the center, and would be lined with a plastic liner.

Construction would be a joint effort between the Directorate of Plans, Training and Mobilization (DPTM), the Directorate of Environmental Compliance and Management (DECAM) and the Directorate of Public Works (DPW). All required environmental permits, NEPA documentation and agency environmental coordination would be coordinated by the DECAM.

Firebreak maintenance. The DPTM, DPW and DECAM would jointly develop a maintenance schedule which would include mowing green strips, erosion control practices and weed control. A Record of Environmental Consideration would be prepared to provide environmental review of the plan in accordance with Army Regulation 200-2, Environmental Analysis of Army Actions.

Initiation of construction activities would begin in fall 2002 and continue through 2004 with subsequent maintenance activities continuing as necessary.

3.0 Alternatives Considered.

This chapter describes the alternatives considered, including the "no action" alternative. Only reasonable alternatives are discussed in detail. Other alternatives considered but discarded from analysis are discussed briefly and reasons for being discarded are given.

3.1 No Action

A firebreak would not be constructed. Firefighting would be conducted as usual to contain and suppress wildland fires threatening Army-controlled and private property.

3.2 Bladed Firebreak Alternative

This alternative would be to construct a firebreak comprised of a contiguous, 40 ft. wide bladed area through the grasslands and wooded areas across the northern part of PCMS, following the boundary where possible.

3.3 Alternatives Considered but Discarded

Providing firebreak protection only around sensitive areas and near buildings was considered. This alternative would not provide the level of protection necessary during a large scale wildland fire, and fuel load would not be decreased enough to prevent these large scale fires from spreading.

Using prescribed burning in patches and thinning of trees to comprise most of the firebreak was also considered. Once again, this alternative would not provide the level of protection necessary during a large-scale fire.

4.0 Affected Environment

This section contains background information on the current environmental conditions of the area(s) that may be affected by the proposed action and alternatives. Where possible, the most current data available for a subject have been utilized. Only information relevant to the proposed action and alternatives has been included. For background information on the PCMS, Fort Carson and its training mission, see the *Environmental Assessment (Programmatic) for Military Installation Land Use at 7th Infantry Division and Fort Carson, Fort Carson Colorado, December 2000*, the *Environmental Assessment of Training Area and Management Modifications for the Piñon Canyon Maneuver Site, May 1997*, and the *Environmental Impact Statement for Training Land Acquisition for Fort Carson, Colorado, with Appendices, 1980*.

4.1. Location, Size and Configuration

The PCMS (Fig 1), occupying 235,896 acres, is located approximately 150 miles southeast of Fort Carson and is totally located in Las Animas County. The PCMS measures about 31 miles east to west and about 21 miles north to south. The 1,670-acre cantonment area is located at the northwest tip of the

facility, adjacent to Highway 350. It is bordered on the north by the Comanche National Grassland and private interests; on the east by the Purgatoire River and U.S. Forest Service (grassland); on the south by county road 56.0; and on the west by State highway 350 and private property. Land use adjacent to the PCMS is primarily agricultural and recreational.

4.2 Land Use

Training at PCMS was initiated in 1985 to provide critical mechanized maneuver lands for larger units on Fort Carson and from other installations. Available mechanized maneuver area is 158,620 acres. The cantonment area contains administrative and support facilities that are used during training exercises. No live fire exercises are currently conducted at the PCMS. The PCMS is utilized for a variety of training missions to include brigade or regiment-size maneuvers, battalion or squadron-size maneuvers, and support operations such as supply, communications, aviation, etc. The entire area is available for training.

4.3 Population

Several civilian employees are permanently assigned to the PCMS. The surrounding area is sparsely populated, as the population of Las Animas County was estimated to be 16,119 in 1999[1].

4.4. Fire Protection

The Directorate of Public Works operates the Fort Carson Fire Department, and includes the PCMS. Fort Carson maintains mutual aid agreements with several cities in the area as well as a mutual fire fighting assistance agreement with the North American Aerospace Defense Command. These mutual aid agreements include both Fort Carson and the PCMS. DPTM and DECAM personnel provide assistance with wildland fire suppression.

4.5 Physiography and Geology

The topography of the PCMS falls generally into four regions. Woodlands made up of primarily piñon pine and juniper cover limestone highlands in the north and northwest. The Hogback, a basalt dike of volcanic origin, runs east and west along the southern boundary of the PCMS. Grassy plains cover the area between the woodlands, the Hogback, and the Purgatoire River. The fourth region consists of the canyons draining into the Purgatoire River from the west (PCMS EA, 1997). Elevations range from 4,400 to 5,900 feet.

4.6 Climate and Wind.

The climate at the PCMS is semi-arid with similar characteristics as Fort Carson. Warm daytime temperatures and low relative humidity cause high evaporation rates. The distinctive environment of Colorado controls the severity of wildland fire problems on the PCMS, as well as the effectiveness of available control responses.

[1] http://www.dlg.oem2.state.co.us/demog/estimate.htm

Temperature data for the PCMS are below.[2].

Temperature Data		
Mean Temperatures		**PCMS***
Maximum. Mean – January		46.8 F
Minimum Mean – January		16.4 F
Maximum Mean – July		88.7 F
Minimum Mean – July		58.5 F
Recorded Extremes		
High		103 F, July 1973
Low		-32 F, Jan. 1963

* Data from closest weather station (Trinidad Airport)

Precipitation. Mean annual precipitation is about 12 inches. Monthly precipitation for November through March is usually less than one inch, and occurs as low intensity rainfall or as snow. Monthly precipitation during April through June is usually less than two inches however; monthly totals greater than two inches are not uncommon. Brief but intense thundershowers may result in flash flooding of ephemeral channels. Monthly precipitation for July through October is usually greater than one inch (USGS Report, 91-4095, pages 8, 12, 13).

Wind. The nearest weather station reporting wind speed is at Pueblo. Conditions at the PCMS are most likely similar. Average wind speed is 8.7 miles per hour. Wind is typically from the west-southwest during winter and fall, early spring and late summer and from the southeast in May, June, and July.

4.7 Air Quality

Federal Clean Air Act regulations enforced by both the County and State Air Pollution Control Divisions currently affect military land use planning and training via two main avenues, fugitive dust and pyrotechnic smoke devices. Current regulations require control of fugitive emissions, like smoke and dust, so as to limit off-site impacts and also protect the general health of local residents, including those soldiers involved in training.

The largest impact from the aforementioned regulations is from the enforcement of a three-kilometer buffer in which no pyrotechnic smoke-generating device may be utilized. The buffer, originally required for exemption from Colorado Regulation 1 Opacity Law, ultimately protects air quality and viewsheds for residents off the Installation. The buffer often results in additional considerations and expertise in long-term land use planning as well as daily planning of training exercises adjacent to the Installation boundary.

Las Animas County is in attainment for all National Ambient Air Quality Standard (NAAQS) for Emissions of Particulate Matter 10 microns (PM_{10}) or less in diameter. PM_{10} emissions are generally particulates that are inhaled into the lungs. Health problems, especially respiratory problems, have been associated with high levels of PM_{10}. Major sources of PM_{10} are street sanding and woodburning. Dust and large particulates are not direct sources of PM_{10}, but they can contribute to the problem in the long

[2] Western Regional Climate Center, http://www.wrcc.dri.edu/summary/climsmco.html

run as they are subject to mechanical breakdown on road surfaces. In past years, the air quality monitoring program at the PCMS measures levels of two variables: Total Suspended Particulates (TSP), and PM_{10}. Air quality is not currently being monitored.

4.8 Noise

The most important source of noise at the PCMS originates from short-term military training exercises and military aircraft operations.

4.9 Water Resources and Hydrology

The PCMS includes several major drainages. The Big Arroyo drainage system is located in the northwest region and flows into Timpas Creek, which is approximately three miles northwest of the PCMS. The proposed firebreak would cross this drainage. The Purgatoire River and ten ephemeral, intermittent, or perennial tributaries are also located within and adjacent to the PCMS (Bramblett 1989). The Purgatoire River, which flows in a northeasterly direction, is a seventh-order tributary to the Arkansas River. These drainages are not within the proposed firebreak study area.

Wetlands at the PCMS are generally classified as one of two types: linear or isolated. Larger drainages, such as Van Bremer Arroyo, are classified as linear. Isolated wetlands are small, usually less than five acres, and normally are associated with erosion control dams in smaller, intermittent drainages. Wetlands have been mapped as part of the National Wetland Inventory, and representative areas are monitored on a regular basis for sediment. The most prominent wetland plant species are cottonwood trees, cattails, willow and salt cedar. Wetlands occurring in the proposed firebreak study area are shown in Fig. 2.

There are approximately 80-drilled wells on the PCMS. Wind or solar energy powers wells that are currently functional. Several major wells have distribution lines associated with them to fill stock tanks, now used for wildlife management and fire suppression.

4.10 Hazardous Materials

The only hazardous materials associated with the proposed action or alternatives would be the fuel, oil, etc. used in the equipment used to construct the firebreak, i.e. Hydro Ax, front end loader, scraper, bulldozer, etc.

4.11 Vegetation and Soils

Vegetation. Well over 300 plant species are found at the PCMS (LCTA Report 1989). Most are native; some are non-native; and a few are designated noxious weeds by either the state or county government. The two most important vegetation types at the PCMS are shortgrass prairie and piñon pine-juniper woodland. Fig. 4 shows vegetation types found in the firebreak area. In any vegetation community, the listed species are the most common, but may vary in density depending on soil inclusions, disturbance, and localized precipitation, seeding, or may even be replaced by other (similar) species.

Vegetation Communities potentially effected by the proposed firebreak at PCMS:

1. *Juniperus monosperma/Oryzopsis micrantha* woodland (one seed juniper/little seed ricegrass), restricted to limestone soils.

One Seed Juniper	*Juniperus monosperma*
Pinon pine	*Pinus edulis*
Sage	*Artemesia spp.*
Skunkbrush	*Rhus spp.*
Frankenia	*Frankenia jamesii*
Greasebush	*Glossopetalon meionandra*
Winterfat	*Ceratoides lanata*
Ricegrass	*Oryzopsis spp.*
Blue Grama	*Bouteloua spp.*
Needlegrasses	*Stipa spp.*

2. *Boutelous gracilis/Hilaria jamesii* grassland (Blue grama/Galleta), wide amplitude and the most common vegetation community found of the PCMS.

Blue grama	*Bouteloua gracilis*
Galleta	*Hilaria jamesii*
Cactus	*Opuntia spp.*
Sages	*Artemesia spp.*
Small Soapweed	*Yucca glauca*
4 Wing saltbush	*Atriplex canescens*
Winterfat	*Ceratoides lanata*
Rabbitbrush	*Chrysothamnus nauseosus*

3. *Sporobolus airoides/Hilaria jamesii* grassland (alkali dropseed/galleta), heavier, clay soils that are highly erodable.

Alkali Dropseed	*Sporobolus airoides*
Galleta	*Hilaria jamesii*
Western wheat	*Agropyron smithii*
Cholla	*Opuntia imbricata*
Small Soapweed	*Yucca glauca*

4. Opuntia imbricata/Boutelous gracilis grassland (cholla/blue grama), a blue grama/galleta grassland (see #2 above) with an overstory of Cholla.

Blue grama	*Bouteloua gracilis*
Galleta	*Hilaria jamesii*
Cholla	*Opuntia imbricata*
Sages	*Artemesia spp.*
Small Soapweed	*Yucca glauca*

4 Wing saltbush	*Atriplex canescens*
Winterfat	*Ceratoides lanata*
Rabbitbrush	*Chrysothamnus nauseosus*\

5. *Agropyron smithii/bouteloua gracilis* grassland (western wheat/blue grama), wide amplitude and 2nd most common vegetation community found of the PCMS, same as #2, but having more western wheat.

Western wheat	*Agropyron smithii*
Blue grama	*Bouteloua gracilis*
Cactus	*Opuntia spp*
Small Soapweed	*Yucca glauca*

6. *Artemesia bigelovii/Ceratoides* lanata shrubland (bigelow sage/winterfat), shale, limestone and sandstone outcrops.

Bigelow sage	*Artemesia bigelowii*
Winterfat	*Ceratiodes lanata*
Grama grass	*Bouteloua spp.*
Ring muhly	*Muhlenbergia toryii*

7. *Glossopetalon meionanderia/Frankenia jamesii* shrubland (greasewood/frankenia), restricted to limestone outcrops.

Greasewood	*Glossopetalon meionanderia*
Frankenia	*Frankenia jamesii*
Side oats grama	*Bouteloua curtipendua*
Little bluestem	*Schizacharim scoparium*
Three awn	*Aristida spp.*
Needlegrasses	*Stipa spp.*
Ricegrass	*Orysopsis spp.*

8. *Sarcobatus vermiculatus/Sporobolus airoides* (black greasewood/alkali dropseed), erodable soils.

Black greasewood	*Sarcobatus vermiculatus*
Alkali dropseed	*Sporobolus airoides*
Blue grama	*Bouteloua gracilis*
Western Wheat	*Agropyron smithii*

9. *Atriplex canescens/Sprorbolus airoides* shrubland (4 wing saltbush/Alkali dropseed), along arroyos and intermitant streams, clayey soils.

4 wing saltbush	*Atriplex canescens*
Alkali dropseed	*Sporobolus airoides*
Western Wheat	*Agropyron smithii*
Wolfberry	*Lycium palidium*
Winterfat	*Ceritoides lanata*
Cholla	*Opuntia imbricata*

Rabbitbrush *Chrysothamnus nauseosus*
(Shaw, R.B., et al., *Plant Communities, Ecological Checklist, and Species List for the U.S. Army Pinon Canyon Maneuver Site, Colorado*, Colorado State University, Department of Range Science, Science Series No. 37, August 1989.)

Noxious weeds. No noxious weed surveys have been completed in the proposed firebreak study area. Noxious weeds are not commonly a problem in this area. If infestations are encountered during project planning, they will be mapped and control measures will be implemented as necessary. More information, and maps, regarding noxious weeds can be found in the Fort Carson Noxious Weed Management Plan.

Soils. For purposes of this EA, soils have been broken down into broad categories known as range sites (Fig. 5). More information on range sites and the soils at PCMS, can be found in *Rangesite Descriptions*, United States Department of Agriculture, Soil Conservation Service, Technical Guide, Section II E, 1975,1976 and *Pinon Canyon Soil Survey: Las Animas County, Colorado*, Contract for the United States Army, prepared by Lee A. Neve, Party Leader, Soil Conservation Service, nd.

4.12 Wildlife

Many species of wildlife, both resident and migratory, are found on the PCMS. At least 54 species (37 genera) of mammals, 235 species of birds, 12 species of fish, 27 species (22 genera) of reptiles, and 7 species of amphibians have been documented (PCMS EA). Important species of management concern are pronghorn, mule deer, swift fox, black-tailed prairie dog, American peregrine falcon, Texas horned lizard, coyote, flathead chub, mountain plover, ferruginous hawk, bald eagle, and golden eagle. Most of the management efforts since the Army acquired the PCMS have been directed toward overall conservation of native fish and wildlife species and their habitats. The PCMS contains no currently designated critical habitat or areas of critical environmental concern.

Four documented golden eagle nesting sites occur on the PCMS. One is located approximately 3.5 miles from the proposed firebreak (Fig 3). This distance is far enough away that the eagles would not be disturbed.

4.13. Endangered or Threatened Species

Legal status for endangered or threatened species is designated by either the USFWS under the Endangered Species Act (ESA) or by the Colorado Division of Wildlife under Colorado Revised Statutes 33-2-105 Article 2 (Conservation Status Handbook, 1999). Section 7(a)(2) of the ESA requires the Army to ensure that any Army action authorized, funded, or carried out is not likely to "jeopardize" the continued existence of any federally listed species or result in the destruction or adverse modification of critical habitat (NEPA Manual, 1998).

Federally Listed species. The species in the below table have been documented on the PCMS.

Definitions:

Threatened – defined as a species, subspecies, or variety likely to become endangered in the foreseeable future throughout all or a significant portion of its range.

Proposed – taxa formally proposed for listing as Endangered or Threatened (a proposal has been published in the Federal Register, but not a final rule).

Federally Listed Species On Fort Carson And The PCMS*				
Common Name	**Scientific Name**	**Status**	**Resident Status**	**Location**
Bald Eagle[1]	*Haliaeetus leucocephalus*	Threatened	Winter	FC & PCMS-Most records from FC Cantonment; often assoc. with prairie dogs, infrequent visitor at PCMS
Black-tailed Prairie Dog	*Cynomys ludovicianus*	Warranted but precluded from listing due to higher priorities	Resident	FC & PCMS
Mountain Plover[2]	*Charadrius montanus*	Proposed	Summer	FC- Nests in Training Area 54, PCMS – southwest corner

*Source: http://wildlife.state.co.us/T&E/list.asp

1) The USFWS has proposed delisting the Bald Eagle. There was no projected date for delisting at the time of this EA.

2) The mountain plover may be listed as Threatened in the future.

Bald Eagle. This species is an uncommon winter visitor or resident on the PCMS. Its distribution is probably influenced by the location of prairie dog colonies. On the PCMS, this species is often seen in Training Area 7. There are no training restrictions associated with the management of this species. The primary conservation activities associated with this species are actions reducing the risk of secondary poisoning. The prairie dog, a major prey species of the bald eagle in winter, is sometimes killed with chemical pesticides. Ingestion of contaminated prey could result in the death of a bald eagle (Draft Endangered Species Management Plan/EA, 2002).

Prairie Dog. No prairie dog colonies occur in the proposed project area.

Mountain Plover. Mountain plovers are generally associated with prairie dog towns. They occur in the southwest part of the PCMS and are found only in the spring and early summer.

4.14 Cultural Resources

The PCMS has a rich cultural history. With approximately 55% of the maneuver site surveyed, over 4,500 properties, both historic and prehistoric have been identified. The grassland area of the proposed firebreak was surveyed in May 2002 and no eligible sites were found (01 May 02 Memorandum, DECAM Cultural Resources Program, Subject: PCMS prescribed burn).

Compliance Procedures. In order to meet the requirements of the National Historic Preservation Act, CRMP, the 1980 Memorandum of Agreement with the Colorado State Historic Preservation Officer (SHPO) and Advisory Council on Historic Preservation (ACHP), and Army Regulation 200-4, Cultural Resources Management, Fort Carson is required to:

- Perform a cultural resource survey and evaluation for unsurveyed areas, prior to any ground disturbing activities or for activities that may affect a structure 50 years of age or older.

- Evaluate all sites and structures 50 years of age or older for eligibility for the National Register of Historic Places (NRHP). Structures include any man-made object.

- Evaluate the potential effects on NRHP listed or eligible sites prior to authorizing any activity in surveyed areas. If listed or eligible NRHP sites may be affected by the proposed work, coordination with the State Historic Preservation Office is required prior to authorization of any work.

Native American Graves Protection and Repatriation Act of 1990 (NAGPRA). This act requires agencies to inventory their collections, publish information, and then repatriate to the appropriate "culturally affiliated" Native American tribe all human remains and associated cultural items. The act also requires consultation with such tribe(s) prior to planned excavation; and in the case of accidental discovery to stop work for at least 30 days while consultation occurs. Currently, Fort Carson consults with ten affiliated tribes.

4.15 Socioeconomics

The predominant land use in the vicinity of the PCMS is livestock grazing. The surrounding area is sparsely populated, as the population of Las Animas County was 16,119 in 1999.

4.16 Protection of Children and Environmental Justice

Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (April 21, 1997), recognizes a growing body of scientific knowledge that demonstrates that children may suffer disproportionately from environmental health and safety risks. These risks arise because (1) children's bodily systems are not fully developed, (2) children eat, drink, and breathe more in proportion to their body weight, (3) their size and weight may diminish protection from standard safety features, and (4) their behavior patterns might make them more susceptible to accidents. Based on these factors, the Executive Order directed each federal agency to make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children. As part of the NEPA process, disproportionate risks to children that result from environmental health or safety risks must be considered and addressed during the

identification and analysis of the potential environmental and socioeconomic effects of the proposed action and alternatives (NEPA Manual, Section 8.8, 1998). No children reside on the PCMS. The surrounding area is sparsely populated and data on children in the area is not available.

The Department of Defense utilizes the National Environmental Policy Act process as the primary mechanism to implement provisions of the Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. The purpose of the order is to avoid disproportionate affects of any adverse environmental or economic impact from federal policies and actions upon minority and low-income populations. No low income or minority populations that would be adversely affected by actions on the PCMS have been identified by the U.S. Environmental Protection Agency (EPA).

5.0 Environmental Consequences

This section identifies the direct, indirect, and cumulative impacts of the proposed action and no action alternative presented in Section 2.0 and 3.0 of this EA for each of the environmental resources previously described in Section 4.0, Affected Environment. Discussion of impacts from the proposed action and no action alternative are combined where possible. The resources identified as having potential to be impacted by the proposed action and alternatives are vegetation and wildlife, and so are discussed in detail in this chapter. Others are only mentioned for consistency to aid the reader or very briefly discussed.

5.1 Location, Size and Configuration

No impact from the proposed action or alternatives.

5.2 Land Use

No impact from the proposed action or alternatives.

5.3 Population

No impact from the proposed action or alternatives.

5.4 Fire Protection

The proposed action and Bladed Firebreak Alternative would improve fire protection through the enhanced protection from wildland fire. Protection would be afforded to private property owners to the north of PCMS. Fire would be better controlled at the break in fuel (vegetation) availability, and the proposed firebreak would provide access to firefighting equipment and personnel. The No Action alternative would not provide this.

5.5 Physiography and Geology

No impact from the proposed action or alternatives.

5.6 Climate and Wind

No impact from the proposed action or alternatives.

5.7 Air Quality

The proposed action would have short-term impacts to air quality from the use of heavy equipment and fugitive dust from the bladed and Hydro-Ax areas. These impacts would be less than the Bladed Firebreak Alternative, which would result in a greater area of disturbance. Equipment used to construct the firebreak would be one bulldozer, one front loader, four dump trucks, three road graders, a track hoe, a compactor, two water trucks, and the Hydro Ax with Fecon attachment

Emissions would not be at the level to require a Record of Non-Applicability and would not require a conformity analysis in accordance with the State Implementation Plan.

The project requires an Air Pollutant Emission Notice and Construction Permit for Land Development from the Colorado Department of Public Health and Environment, Air Pollution Control Division since more than twenty-five acres of ground would be disturbed. The permit requires a fugitive dust plan.

The fugitive dust impacts would be mitigated by the use of water during construction, and the use of dust suppressant on the bladed areas as necessary if blowing dust becomes a problem. Different types of vegetation would be researched for their usefulness as cover on the firebreak. If a very low growing, fire resistant type of vegetation is found to be suitable for the area, it would be planted on the firebreak. No vegetation that would be considered aggressive, especially non-native species, would be used.

The No Action Alternative would cause no change in air quality, with one exception. In the event of a wildland fire, air impacts would be temporarily increased from a fire that would have a greater fuel load and be more difficult to bring under control.

5.8 Noise

Short term impacts would occur from the use of heavy equipment during construction of the firebreak. The Hydro-Ax would have the most impact, increasing noise when it would be in use. This machinery would not be used in the vicinity (within 500m) of sensitive receptors, such as nesting raptors, and would not be used during the nesting and fawning season.

5.9 Water Resources and Hydrology

The proposed firebreak would cross Big Arroyo Canyon under both action alternatives. Big Arroyo is a dry drainage feature that contains water only during storm water events. The arroyo would be sloped and hardened with rock at the location where the firebreak would cross to allow vehicle access. This would impact approximately 0.1 acres of an area at each crossing point as defined as “waters of the United States” and would require a permit from the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act.

No negative impacts would occur from the proposed action or Bladed Firebreak Alternative. Wetlands and hydrological features would not be adversely affected. The three fire suppression pits would provide increased wetland area.

The no action alternative would not impact wetlands or hydrological features.

5.10 Hazardous Materials

Hazardous materials would only be present during construction in the form of fuel, oil, etc. used in the operation and maintenance of the heavy equipment. Procedures and regulations for handling hazardous material, as set forth in Fort Carson Regulation 200-1 would be in affect, and in case of a spill, the Fort Carson Spill Contingency and Containment Plan would be followed.

5.11 Vegetation and Soils

Vegetation. Short-term impacts to vegetation would occur from the proposed action and Bladed Fire Break Alternative. The broad vegetation-type acreages that would actually be impacted by the proposed firebreak within the study area are listed below. Acreages are approximate.

Trees – 150 acres
Shrubs – 135 acres
Grassland – 188 acres
Total – 473

The short-grass prairie is very extensive across the region, and the benefits from wildland fire protection would outweigh the loss of approximately 92 acres that the proposed firebreak would directly affect. Although occasional fire is necessary to sustain ecological function of a prairie ecosystem, frequent fires can be very damaging to the vegetation. The proposed firebreak would help protect the remaining vegetation through reduction of fuel load. Fires that occur under high fuel load conditions (e.g. increased thatch) burn hotter and cause more damage to the roots of grasses. The thinning of the juniper stands with the Hydro Ax would provide a healthier forest and reduce the fuel loading in those areas.

Noxious weeds would have the potential to spread into the disturbed areas. The Bladed Firebreak Alternative would have the greatest potential for noxious weeds since the disturbed area (bare ground) would be greater, and noxious weeds would have a better chance to spread into the wooded areas. The Fort Carson Integrated Pest Management Plan and Noxious Weed Management Plan provide the guidance and policy to prevent establishment and spread of noxious weeds on the PCMS. Fort Carson uses an integrated weed management strategy that places priority on non-chemical means of control when applicable. These different strategies would all be applied to the firebreak.

Soils. Acreages of soils affected by both action alternatives would be the same, but differ in intensity. Soils in the forested areas would not be impacted as much under the proposed action as they would under the Bladed Firebreak Alternative. Broad soil types found within the study area are listed below. Acreages are approximate.

Limestone Breaks – 127 acres
Shaly Plains – 121 acres

Loamy Plains – 112 acres
Other Sites – 117
Total – 477 acres

The Bladed Firebreak Alternative would cause the most impacts to soils, since the amount of disturbance would be greater through the increased use of blading. The proposed action would have less impact since the bladed areas would not be as extensive. The proposed action, however, would still impact all soils across the entire firebreak. Removal of the tree canopy and use of heavy equipment would also impact the soils, though to a lesser degree than blading. Under the proposed action, the soils would be left mainly intact and covered with a layer of woodchip mulch.

The No Action Alternative would have no impact on vegetation or soils. An indirect impact would have potential to occur in the event of wildland fires that may not be suppressed and would cause damage to the short grass prairie and juniper woodlands. Increased intensity and temperatures occur when the fuel load is heavy from years of suppressing wildland fires. The prescribed burning component of the proposed action would lessen fuel load.

5.12 Wildlife

Short-term impacts to wildlife have the potential to occur from the proposed action and Bladed Firebreak Alternative, especially if the actions were to occur when birds are nesting.

The Migratory Bird Treaty Act implements various treaties and conventions between the United States and Canada, Japan, Mexico and the former Soviet Union for the protection of migratory birds. Under the Act, taking, killing or possessing migratory birds is unlawful. Both the proposed action and Bladed Firebreak Alternative have potential to kill migratory birds during nesting season. The firebreak would be constructed in the fall and winter when migratory birds are not nesting in the area.

Whitetail and mule deer also use the juniper for cover when fawning. Noise from the heavy equipment would have greater impact on these species during the fawning season also. Construction would take place in late summer, fall and winter when impacts would be lessened, yet provide the fire protection needed by the firebreak as soon as possible. The prescribed burning component of the proposed action would benefit wildlife by reducing fuel load for damaging, fast moving wildland fires, and would be timed to have least impact to these species. The Bladed Firebreak alternative would have increased impacts on wildlife due to more juniper woodland being destroyed.

The No Action Alternative would have no impact on wildlife, including migratory birds. An indirect impact would have potential to occur in the event of wildland fires that may not be suppressed and could cause negative impacts to wildlife and wildlife habitat.

5.13 Endangered or Threatened Species

The proposed action and Bladed Firebreak Alternative would have no impact on Endangered and Threatened species. Under the current listings, none are known to occur in the proposed project area. Enhanced protection from wildland fires would help to protect any future listed species and their habitat from being adversely impacted.

The No Action Alternative has the potential for the indirect impact of wildland fire to affect endangered and threatened species if future listings place them in the area, or if any occur on private land to the north of the firebreak.

5.14 Cultural Resources

The proposed action and Bladed Firebreak Alternative would not impact known eligible archaeological sites. No eligible sites were found during the surveys conducted for this project (1 May 02 DECAM memorandum). Four non-eligible sites were recorded during the 1 May 02 survey. These four sites will be re-evaluated after construction work is completed. The re-evaluation will be completed in fiscal year 2003 and any change to site status will be addressed. The treed portion of the firebreak that would be treated with the Hydro Ax would be surveyed by an archaeologist as construction takes place to accommodate minor changes in the firebreak route. In the event cultural resources are discovered during construction, operations would cease immediately until the resource was evaluated for eligibility. If determined eligible, mitigation measures would be implemented to protect the resource.

The No Action alternative would not impact cultural resources. This alternative has the potential for an indirect impact to occur in the event of wildland fires that may not be suppressed and could cause negative impacts to cultural resources.

5.15 Socioeconomics

No negative impacts to the local community would occur from any of the alternatives. A benefit would occur from the protection of privately owned property, homes and ranchland, which have the potential to be affected by wildland fire if the firebreak is not constructed.

5.16 Protection of Children and Environmental Justice

No adverse impacts to children would occur from any of the alternatives.

No adverse impacts to the local community would occur from any of the alternatives, therefore an analysis pursuant to Executive Order 12898 (Environmental Justice) is not required.

5.17 Cumulative Effects.

Per 40 CFR 1508.7, cumulative effects is defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such actions.” There would be no negative significant cumulative effects. However, natural resources management and human health and safety at the PCMS and the surrounding area would benefit from positive cumulative effects through implementation of the entire wildland fire suppression program and construction of this firebreak.

Future actions at the PCMS that may have cumulative impacts would include the construction of ranges, increased training and maneuvering with tanks, and construction of facilities. These actions would be analyzed in a separate NEPA document (Environmental Impact Statement) for these, and other, impacts.

6.0 Conclusion

Implementation of the proposed action would provide an effective, and environmentally sound means of wildland fire suppression. Use of prescribed fire would not cause National Ambient Air Quality Standards to be exceeded and would provide long-term positive effects by improving native vegetation. The Bladed Firebreak alternative, while providing the same protection, would have more adverse impacts on air quality, vegetation and wildlife. The No Action alternative would not provide for enhanced protection from wildland fires to the property owners to the north of the installation. Preparation of an Environmental Impact Statement is not required and a Finding of No Significant Impact will be published in accordance with Army Regulation 200-2, Environmental Effects of Army Actions.

7.0 Listing of References

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8.0 Personnel Interviewed

Brian Goss – DECAM, PCMS Coordinator
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James Kulbeth – DECAM, Range Conservationist

Randy Korgel – DECAM, Archaeologist
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